

REMARKS

Claim 1 is amended. Support is found by reference to claim 10 as originally filed and at page 13, lines 32-35 of the specification.

Review and reconsideration on the merits are requested.

Claims 1 and 5-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,776,195 to Blasko et al.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

The laminated resin molding of claim 1 comprises a thermoplastic polymer layer (A), a polyamide-based resin layer (B) and a thermoplastic resin layer (C).

The laminated resin molding is obtained by a method which comprises laminating by the simultaneous multilayer coextrusion technique using a coextruding machine comprising a die and a plurality of extruders each for feeding a resin to said die, said die temperature being not higher than 250°C.

Thus, the laminated resin molding is easy to produce.

The laminated resin molding comprises the layer (A) which is a thermoplastic elastomer comprising at least one species selected from the group consisting of a styrene/butadiene-based elastomer, a polyolefin-based elastomer, a polyester-based elastomer, a polyurethane-based elastomer, a poly(vinyl chloride)-based elastomer and a polyamide-based elastomer.

Thus, the laminated resin molding has excellent flexibility.

However, further problems arise in case of the above constitution.

Namely, co-extrusion with the fluororesin is necessarily carried out at a high temperature of at least 260°C to attain a sufficient level of interlaminar adhesive strength between the

polyamide resin layer and fluororesin layer. Such a high temperature, however, is problematic because it leads to foaming of the thermoplastic elastomer in the molding step, for example.

To solve the above problem, a die temperature of not higher than 250°C is selected. Thus, the resulting laminated resin molding has a good luminous transmittance and good appearance of molding surfaces as well as productivity.

Furthermore, the polyamide-based resin has an amine value of 15 to 35 (equivalents/10⁶ g). Thus, the laminated resin molding has high interlaminar adhesive strength as well as good luminous transmittance and good appearance.

Consequently, the present invention can simultaneously solve problems relating to productivity, flexibility, luminous transmittance, appearance and adhesion strength.

On the other hand, Blasko et al does not disclose either of a multi-layered tube obtained by simultaneous multilayer coextrusion of three or more layers or a multi-layered tube having good flexibility. Thus, Blasko et al did not encounter and therefore did not recognize the problems facing the present inventors, and there is no disclosure of the means for solving these problems in Blasko et al.

The Examiner cited Blasko et al as disclosing two or more layer tubular polymeric laminates having an inner fluoropolymer layer, an outer nylon layer, and another resin layer (thermoplastic polymer layer). Further, the Examiner cited Blasko et al as disclosing co-extrusion at a temperature ranging between 150-280°C (col. 7 lines 20-25).

However, the extrusion temperature disclosed in Blasko et al is an extrusion temperature for forming a two-layered structure consisting of layers 16 (polyamide) and layers 18 (fluoropolymer). See col. 7, lines 20-27 of Blasko et al.

When polyamides outside the claimed amine value of (15 to 35 equivalents/ 10^6 g) are used for the claimed three-layered molding and the laminated molding having the claimed three-layered structure laminated by simultaneous multilayer co-extrusion outside the claimed die temperature of not higher than 250°C, the laminated molding is inferior either in initial intermediate layer/inner layer adhesive strength or in inner and outer surface tube appearance, as shown in Table 4 of page 65 of the specification.

In more detail, Experiment Example 12 employing polyamide PA-C having an amine value of 6.8 (equivalents/ 10^6 g) (see Table 1 at page 57) and processed at a die temperature of 260°C resulted in molding failure. Experiment Example 13 employing polyamide PA-C having an amine value of 8.4 equivalents/ 10^6 g and processed at a die temperature of 220°C provided poor intermediate layers/inner layer adhesive strength. Experiment Example 16 prepared using polyamide PA-B having an amine value of 24 (equivalents/ 10^6 g) within the scope of the present claims but processed at a die temperature of 260°C outside the scope of the present claims resulted in molding failure. On the other hand, Experiment Examples 1 to 11 as shown in Table 3 at page 64 of the specification, prepared using a polyamide PA-E, or PA-G, or PA-B or PA-E all having an amine value within the scope of the present claims and processed at a die temperature of not higher than 250°C provided a product having good appearance of tube inside and outside surfaces with no peeling of the outer layer/intermediate layer and good adhesive strength between the intermediate layers/inner layer.

On the other hand, Blasko et al does not disclose the laminated resin molding of the invention, and does not teach or suggest the conditions necessary for obtaining it.

For the above reasons, it is respectfully submitted that the amended claims are patentable over Blasko et al, and withdrawal of the foregoing rejection under 35 U.S.C. §103(a) is respectfully requested.

Withdrawal of all rejections and allowance of claims 1 and 5-15 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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